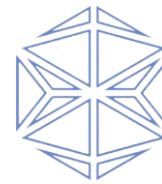# Metaverse

A metaverse is a network of 3D Virtual Worlds focused on the social connection in futurism and Science fiction, the term is often described as a hypothetical iteration of the internet as a single, universal Virtual world that is facilitated by the use of Virtua+l and augmented reality headsets.

History

The term metaverse was coined in Neal Stephenson's 1992 Science fiction Snow crash where humans, as avatars, interact with each other and software agents, in a three-dimensional virtual space that uses the metaphor of the real world. Stephenson used the term to describe a Virtual Reality based successor to the Internet.

Neal Stephenson's metaverse appears to its users as an urban environment developed along a 100-meter-wide road, called the Street, which spans the entire 216 km circumference of a featureless, black, perfectly spherical planet. The virtual Real estate is owned by the Global Multimedia Protocol Group, a fictional part of the real Association of computing machinery, and is available to be bought and buildings developed thereupon.

Users of the metaverse access it through personal terminals that project a high-quality virtual reality display onto goggles worn by the user, or from grainy Black and white public terminals in booths. The users experience it from a first-

person perspective. Stephenson describes a subculture of people choosing to remain continuously connected to the metaverse; they are given the sobriquet, gargoyles, due to their grotesque appearance.

Within the metaverse, individual users appear as avatars of any form, with the sole restriction of height, "to prevent people from walking around a mile high". Transport within the metaverse is limited to analogues of reality by foot or vehicle, such as the monorail that runs the entire length of the Street, stopping at 256 Express Ports, located evenly at 256 km intervals, and Local Ports, one kilometer apart.

The Metaverse growth, 2020–2024
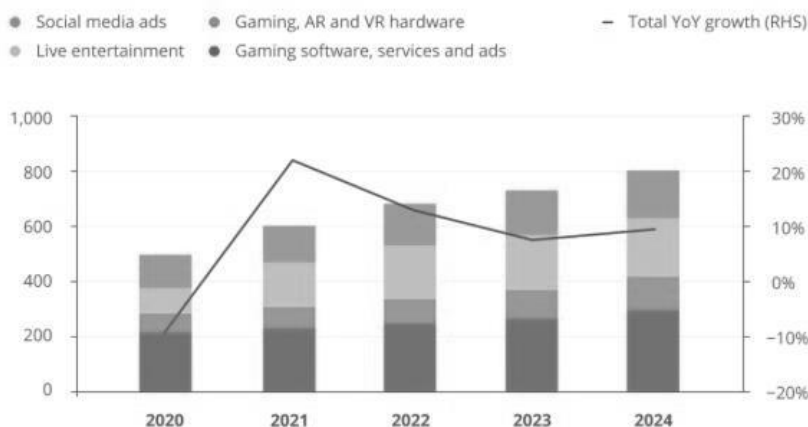
Virtualand

VirtuaLands are places where you can live like the real world In general, you can work on these lands to earn money, play, and have fun, i.e., experience everything you have in the real world through Metaverse on the virtual world in 3D and VR You can apply your ideas in the virtual world via the Blockchain

provided by VirtuaLand so that enjoy working in the new and great Metaverse world.

How SVM Works

SVM works by mapping data to a high-dimensional feature space so that data points can be categorized, even when the data are not otherwise linearly separable. A separator between the categories is found, then the data are transformed in such a way that the separator could be drawn as a hyperplane. Following this, characteristics of new data can be used to predict the group to which a new record should belong.
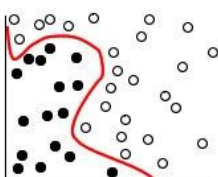
For example, consider the following figure, in which the data points fall into two different categories.

Figure 1. Original dataset
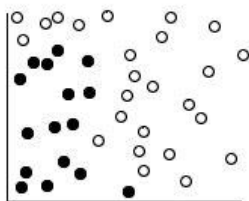
The two categories can be separated with a curve, as shown in the following figure.
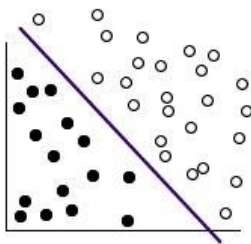
Figure 2. Data with separator added

After the transformation, the boundary between the two categories can be defined by a hyperplane, as shown in the following figure.

Figure 3. Transformed data

The mathematical function used for the transformation is known as the **kernel** function. SVM in IBM® SPSS® Modeler supports the following kernel types:

- Linear
- Polynomial
- Radial basis function (RBF)
- Sigmoid

A linear kernel function is recommended when linear separation of the data is straightforward. In other cases, one of the other functions should be used. You will need to experiment with the different functions to obtain the best model in each case, as they each use different algorithms and parameters.

Virtualland Multi-Block Network

Virtualland is run on two separate blocks, Atrium and Polygon, in two separate parts, since Polygon in the second layer can connect and transact with Ethereum, the transfer of assets

between these two networks is easier. Given the rising gas price of Ethereum main network, one of the most efficient ways to use the assets is to transfer them to Layer 2 networks; Networks that are faster and cheaper. One of the best in the field is the Polygon network and Polygon Bridge for asset transfer.

The Blockchain Triangle (Bermuda Triangle) refers to the popular belief that decentralized networks can only offer two of the three benefits of decentralization, security, and scalability.

Matic was proposed as a scalable solution to overcome these obstacles. Expensive Atrium costs are unacceptable to most users, and Polygon acts as a solution for digital currency users to easily buy NFT, participate in Defi, and participate in the virtual world efficiently and cost-effectively.

Use of VR technology

Following the worldwide outbreak of COVID-19 and quarantine in many countries, some occupations were able to work remotely. Often these business employees communicated with each other or their clients using virtual networking platforms. Many employers find that employees in their organization can operate remotely without having to be physically present in their office. In addition to staff satisfaction, this saves running costs of office work, commuting, and more. These benefits allowed employers to continue to work remotely with their staff after the COVID-19 restrictions were lifted. But the social

networking applications used for telecommuting did not meet some of the needs of these organizations. To continue professional work, an internet that could give users the feeling of entering a three-dimensional space was needed.

Metaverse technology could meet this need. This technology has been used in computer games and entertainment software for many years. But now it can be used in commercial activities by developing and adding innovations, for example, a lawyer can meet his client in the Metaverse space and do his business without the need for physical presence, or to hold a training course and thousands of other businesses can hold the meetings in a 3D virtual space.

Therefore, any person can start their own business on a plot of land, Another example is that most clothing stores have shifted their activities to two-dimensional cyberspace. The problem is that shoppers can not view the product in three dimensions from different places, or choose other suitable clothes. This problem is a waste of time and money to return the clothes and… this problem is solved by metaverse with scan cameras, and by determining the actual size of the buyer and even trying the clothes on with an animated model that is displayed to other buyers. The above was just a limited number of features of the Metaverse world.

Use of learning machines and security

As a rule, the presence of a large number of users in such an environment leads to the transfer of large amounts of private and non-private data of users. This part of the project includes a research project that, if possible, combines the use of artificial intelligence and blockchain to create a different and safer environment.

Artificial intelligence techniques will be widely used in modern cities, where vast amounts of data are exchanged in the virtual world. At this stage, an intelligent classification system of information is needed.

Let's not forget that this amount of information requires an impenetrable security system, which with the addition of blockchain to artificial intelligence, the problem of security and privacy is mostly solved, part of the data in an interconnected network is provided by default, which often this is not the case. To fill the gap between ideal assumptions and real constraints, a support vector machine can be used on the blockchain network platform, where IoT data is encrypted and then stored in a distributed general ledger. In this case, a detailed article by several researchers from scientific centres Beijing Institute of Technology and Temple University has been written that we try to use.

Decentralization of information and access

Due to the fact that this system and technology is implemented on a blockchain platform, it is possible to create conditions in
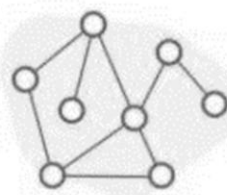
which users can operate in a secure environment and without third party access to the private key of assets with a secure memory in this space. Distributed computing in this technology, distributed systems are processed independently. A distributed system consisting of several automated computers has been made and these computers are connected by an independent network like a blockchain. Computers communicate to achieve a common goal. A computer program that runs on a distributed system is called a distributed program, and the process of writing such programs is called distributed programming. Distributed computing also refers to the use of distributed systems to solve computational problems. In distributed computing, a problem is divided into different tasks, each of which is solved by one or more computers. These tasks communicate with each other by sending messages. A decentralized application or DAPP is a useful software that runs on the Distributed computing system described above. Decentralized programs gained their reputation from (DLT) such as the Ethereum blockchain. It often refers to decentralized programs as smart contracts.

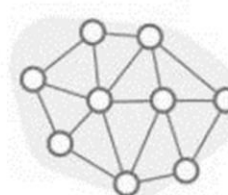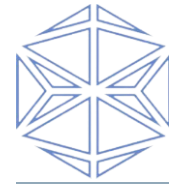**Types of network organizations**

Centralized   Decentralized   Distributed

Lands available in Virtualland

In the Virtualland project, different dimensions of the land have been used for the implementation of projects. To better understand the size and dimensions of the meter unit has been used, the smallest piece divided in the project has been assumed to be 128 meters by 128 meters, considering the creation of three-dimensional space is done in a bed with a voxel unit, each square meter with 32 voxels is executed in 32 Voxels at a height of 128 voxels, division of lands is

| 1*1 | 2*2 | 4*4 | 6*6 | 10*10 |
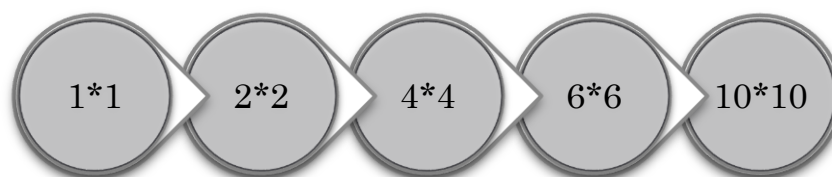
ERC721

In Virtualland, various networks are used, one of which is Ethereum ERC721 and the other is Polygon network. As Ethereum core network faces overcrowding and high costs due to increased demand, the Virtualland team has chosen Polygon, an Ethereum -compatible network, to significantly reduce fees and speed up transactions for its users of all tastes.

The Ethereum NFT standard is unique and has an owner who can sell it to other owners, and the identifier is used to identify a specific NFT that is neither destroyed nor lost on the move.

In ERC721 the balance of one address can be returned or transferred from one address to another without any damage.

Ethereum

NFTs are currently taking the digital art and collectibles world by storm. Digital artists are seeing their lives change thanks to huge sales to a new crypto-audience. And celebrities are joining in as they spot a new opportunity to connect with fans. But digital art is only one way to use NFTs. Really they can be used to represent ownership of any unique asset, like a deed for an item in the digital or physical realm.

If Andy Warhol had been born in the late 90s, he probably would have minted Campbell's Soup as an NFT. It's only a matter of time before Kanye puts a run of Yeezys on Ethereum. And one day owning your car might be proved with an NFT.

NFTs are tokens that we can use to represent ownership of unique items. They let us tokenise things like art, collectibles, even real estate. They can only have one official owner at a time and they're secured by the Ethereum blockchain – no one can modify the record of ownership or copy/paste a new NFT into existence.

NFT stands for non-fungible token. Non-fungible is an economic term that you could use to describe things like your furniture, a song file, or your computer. These things are not

interchangeable for other items because they have unique properties.

Fungible items, on the other hand, can be exchanged because their value defines them rather than their unique properties. For example, ETH or dollars are fungible because 1 ETH / $1 USD is exchangeable for another 1 ETH / $1 USD.

NFTs and Ethereum solve some of the problems that exist in the internet today. As everything becomes more digital, there's a need to replicate the properties of physical items like scarcity, uniqueness, and proof of ownership. Not to mention that digital items often only work in the context of their product. For example you can't re-sell an iTunes mp3 you've purchased, or you can't exchange one company's loyalty points for another platform's credit even if there's a market for it. NFTs are different from ERC-20 tokens, such as DAI or LINK, in that each individual token is completely unique and is not divisible. NFTs give the ability to assign or claim ownership of any unique piece of digital data, trackable by using Ethereum's blockchain as a public ledger. An NFT is minted from digital objects as a representation of digital or non-digital assets. For example, an NFT could represent:

- Digital Art:

- GIFs

- Collectibles

- Music

- Videos

- Real World Items:

- Deeds to a car

- Tickets to a real world event

- Tokenized invoices

- Legal documents

- Signatures

- Lots and lots more options to get creative with!

An NFT can only have one owner at a time. Ownership is managed through the uniqueID and metadata that no other token can replicate. NFTs are minted through smart contracts that assign ownership and manage the transferability of the NFT's. When someone creates or mints an NFT, they execute code stored in smart contracts that conform to different standards, such as ERC–721. This information is added to the blockchain where the NFT is being managed. The minting process, from a high level, has the following steps that it goes through:

- Creating a new block

- Validating information

- Recording information into the blockchain

NFT's have some special properties:

- Each token minted has a unique identifier that is directly linked to one Ethereum address.

- They're not directly interchangeable with other tokens 1:1. For example 1 ETH is exactly the same as another ETH. This isn't the case with NFTs.

- Each token has an owner and this information is easily verifiable.

- They live on Ethereum and can be bought and sold on any Ethereum-based NFT market.

In other words, if you own an NFT:

- You can easily prove you own it.

- Proving you own an NFT is very similar to proving you have ETH in your account.

- For example, let's say you purchase an NFT, and the ownership of the unique token is transferred to your wallet via your public address.

- The token proves that your copy of the digital file is the original.

- Your private key is proof-of-ownership of the original.

- The content creator's public key serves as a certificate of authenticity for that particular digital artefact.

- The creators public key is essentially a permanent part of the token's history. The creator's public key can

demonstrate that the token you hold was created by a particular individual, thus contributing to its market value (vs a counterfeit).

· Another way to think about proving you own the NFT is by signing messages to prove you own the private key behind the address.

· As mentioned above, your private key is proof-of-ownership of the original. This tells us that the private keys behind that address control the NFT.

· A signed message can be used as proof that you own your private keys without revealing them to anybody and thus proving you own the NFT as well!

· No one can manipulate it in any way.

· You can sell it, and in some cases this will earn the original creator resale royalties.

· Or, you can hold it forever, resting comfortably knowing your asset is secured by your wallet on Ethereum.

And if you create an NFT:

· You can easily prove you're the creator.

· You determine the scarcity.

· You can earn royalties every time it's sold.

· You can sell it on any NFT market or peer-to-peer. You're not locked in to any platform and you don't need anyone to intermediate

- Security

The creator of an NFT gets to decide the scarcity of their asset.

For example, consider a ticket to a sporting event. Just as an organizer of an event can choose how many tickets to sell, the creator of an NFT can decide how many replicas exist. Sometimes these are exact replicas, such as 5000 General Admission tickets. Sometimes several are minted that are very similar, but each slightly different, such as a ticket with an assigned seat. In another case, the creator may want to create an NFT where only one is minted as a special rare collectible.

In these cases, each NFT would still have a unique identifier (like a bar code on a traditional "ticket"), with only one owner. The intended scarcity of the NFT matters, and is up to the creator. A creator may intend to make each NFT completely unique to create scarcity, or have reasons to produce several thousand replicas. Remember, this information is all public.

In simple terms, Minting NFT refers to the process of turning a digital file into a crypto collectible or digital asset on the Ethereum blockchain. The digital item or file is stored in this decentralized database or distributed ledger forever, and it is impossible to edit, modify, or delete it. As is the process of creating fiat coins, when a manufacturer mints a physical coin, the process of uploading a specific item onto the blockchain is known as "minting".

Or we can define "NFT Minting" as the process by which your digital art or digital content becomes a part of the Ethereum

blockchain. The NFT minting process is Similar to the way metal coins are minted and put into circulation, non-fungible tokens are also "minted" after they are created. This process turns a simple file into a crypto asset easily traded or bought with cryptocurrencies on a digital marketplace without an intermediary.

During the minting process, the creator of the NFT can schedule royalties from every subsequent sale, which will be a commission he can receive whenever his work is sold to another person, or is traded on the secondary market

It is difficult to estimate how long it might take during the process of minting NFTs. But most NFT platforms, tools, and NFT marketplaces make the NFT creation process easy.

By default, the process of creating an account or logging into the major NFT marketplaces is just to install a browser chrome extension called Metamask, which is an Ethereum wallet.

Now, turning your digital content into NFT or uploading the file to the NFT marketplaces and listing it for sales, is similar to the process of uploading a video on YouTube, uploading a music file on Spotify and is even similar to the process of listing a digital item or product for sale on Amazon, Ebay or Etsy.

All you need is to upload the file (PNG, JPG, GIF, MP3 or MP4), assign a title and subtitle, add a description, set up royalties and list it for sale.

Yes. Most NFTs and NFT markets are stored and hosted using the smart contracts of the Ethereum blockchain.

Using the Ethereum blockchain (creating NFTs, buying, selling, or transferring an asset at an Ethereum address) has a cost, and that cost is called the "gas fee" or "Gwei".

You cannot mint an NFT for free. Currently, the largest NFT marketplaces are hosted on the Ethereum blockchain and the Binance Smart Chain protocol.

What you can do when minting or creating an NFT is to choose a more affordable platform.

The most popular and most economical NFT marketplaces on the Ethereum blockchain are: the OpenSea NFT, Rarible, and Mintable.

The most popular marketplaces on the Binance Smart Chain network are BakerySwap, Juggerworld and Treasureland.

After selecting the platform and before you start minting NFTs, you will need a digital wallet or Ethereum wallet.

The most popular digital wallets are Metamask, Trust Wallet, Coinbase Wallet, and Rainbow.

When you create a wallet it generates a "seed phrase," which is a string of 12 random words that allows you to access your funds in case you lose access or forget your wallet password.

A cryptocurrency wallet or digital wallet is composed of a 'public wallet address' and a 'private key'. The 'public wallet address' is usually used to transfer any cryptocurrency or NFTs from one wallet to another, while the private keys or secret keys allow you to have control over your funds.

Another cryptocurrency wallet that is becoming popular and worth mentioning is Fortmatic/Magic, which allows the user to log in with an email address and password. The Fortmatic (Magic) wallet will create and store the "seed phrase" or "secret key" for you, securely and simply.

OpenSea NFT is currently the largest NFT ecosystem. You can find a wide range of NFTs from the ERC-721 and ERC-1155 standards, including art, virtual worlds, sports, metaverses, trading cards, and ENS domain names.

Metamask is OpenSea's default wallet, and you can easily buy, sell, and trade NFT assets such as Decentraland, Axies (Axie Infinity), CryptoKitties, and more.

You can also easily create your own NFT using the OpenSea platform's digital asset creation tool, such as adding a new item to your NFT collection for free. You can also sell your items by setting a fixed price, initial sale or set up an auction.

Categories: digital art, trading cards, sports, metaverses, collectibles, crypto collectibles, music, photography, games, etc.

Rarible

Rarible is an NFT marketplace that focuses exclusively on unique digital assets. You can use this platform to "mint" new NFTs and sell your digital creations, be they music, digital art, virtual worlds or movies.

At Rarible you can buy and sell NFTs in categories such as art, photography, games, metaverses, music, domains, memes and more.

Categories: art, music, photography, DeFi, virtual worlds, Punks

Team

The Virtualland team is happy to serve the users by employing experts in blockchain, network, site and design, in this regard, it uses two block chain specialists and two network specialists and elite people in the field of site and design in the virtual and project who have started their cooperation with us since 2016 and in the second half of 2021 have decided to enter Metaverse, and in this way, Metaverse blockchain and space maker companies have strong and very useful cooperation with Virtualland.

Oliver Taggart Blockchain Developer

Alex Abdullahi Blockchain Developer

Ronan Bearwood   Web Developer

Sarah Mito   Game Developer

Shaun Tosh.   Quality Control

Ash Helena.   Social Medias

Overview

Metaverse is a global network in the form of continuous 3D simulations that are processed instantaneously.

In this network, the identities of people, objects, real estate, avatars and even names are transferable; These transactions are made with the help of digital currencies.

In this network, payment systems maintain their continuity and at the same time accommodate a large number of real people as virtual identities.

Entering the real world arena in the direction of the development of new technologies, the unique Metaverse network has forced many big famous companies in the world to step into this field.

Virtualand is one of the first to enter this field with clear goals and years of experience in the blockchain industry.

Similar to the real world, Virtualand provides users with business and commerce, science, various entertainment and everything that might happen in the real world daily.

Virtualand has started its activity with clear and far-sighted goals as follows:

The first part of this project is the sale of a limited number of fields from a large project, which is done in the form of NFT.

To guarantee the return on investment to investors and to witness the significant progress of the project for investment, and with the aim of comfort and development of landowners, Virtualland has started to build the complex in 3D and will update to VR system. Therefore, the required business and space and everything that the owners of Virtualand need will be provided for them.

They can also expand their business to become an active part of this powerful network. In addition to buying and selling real estate, homeowners can start building their plans and projects and take advantage of this exceptional opportunity to earn money and even have fun.

Virtualand aims to build a very strong virtual world in this global network and create encouragement for all landowners of Virtualand and has also dedicated a number of its lands as a gift to large companies such as Binance, CMC, Coinbase, Tesla, Apple and Xbox.

The purpose of creating these platforms is for large companies to spark a revolution in the VR industry by implementing their innovations in a public platform. Certainly, the presence of all of them in one virtual platform can induce big changes. In addition to these parts reserved for the said companies, two other separate parts are considered:

The first blockchain-based world fashion show where costume designers show their designs in NFT and participate in the first Virtualand World Fashion Show.

The second part of the project, called Citizen Land, is to build a place similar to our planet where users can buy parts of this virtual space and fulfil their dreams in the virtual cities of this platform. To help expand the project, several pieces of land is considered for big brand stores like Adidas, Nike and other major brands.

The second part of the project is based on Polygon. This part is inspired by the original human desire to live on other planets. Life on Mars!

Now the question is: "Why Mars and why Polygon platform?

Mars is the only planet in the solar system where research has shown to be a potential for the life and activity of living things.

Many entrepreneurs and big business owners have come up with plans to migrate to Mars or exploit Mars's mineral resources, But most of these ideas have remained crude due to the specific conditions of Mars.

The only currently available plan is Tesla's SpaceX mission to Mars. In this plan, solutions have been proposed according to the environmental requirements of living on Mars; For example, the creation of life capsules on Mars for early migrants, the cultivation of plants in Martian space and to convert CO2 in Mars to oxygen, the creation of water vapour cycle devices to increase the concentration of the Martian atmosphere that work with solar energy, as well as several other projects which their implementation will change the atmosphere of Mars.

With the implementation of these plans, it will be possible to be able to live outside the life capsules; After that, a normal environment can be created for human life.

By simulating this situation on the land of Marsland, Virtualand has tried to take the monopoly of ideation out of the hands of certain people and to enable the implementation of new ideas and the experience of life on Mars for all those active in the NFT platform and the world of cryptocurrency.

Now why a Polygon platform?

In its second layer, Polygon provides the connection between its substrate and the ethereum blockchain.

By choosing polygon as the platform for the Mars project, an attempt is made to maintain a blockchain connection between the two parts of the project so that even in the virtual world, human connection with the motherland, which is Earth, is not cut off.

The main goal of the second phase of the Virtualand project is to create a new world for all ambitious and intellectual people, to break the monopoly of being in the spotlight by a few.

As an innovator, entrepreneur, and believer in the advancement of new technologies, Virtualand has created the conditions for its landowners to implement their ideas and expose them to the world, as well as reward them with the benefits of the new economic ecosystem of the virtual world.

When talking about open-world games, Minecraft always comes to mind inevitably . Within Minecraft, the players can create a customized 3D world. Moreover, it includes robust and powerful backend interfaces, which enables the users to run their own game or run in that world. More significantly, the Bring Your Own Device concept is introduced to the game. You can buy your own compute resources as a creator, or a Minecraft server and implement your Minecraft-based mini- game.

 By Minecraft, the 3D open-world blockchain-based platforms are mostly inspired in some way. Moreover, several well-run products have been already observed. These products have partially focused on game creation and gaming. While other parts have concentrated on showcasing assets (NFT) and 3D social networking. Moreover, a thin layer of 3D visualization is occasionally offered while the community is allowed to add further extensions to supplement their ecosystems. Though, the same customization was not demonstrated in any present blockchain-based open worlds and user experiences the level as Minecraft. In other words, a Turing complete world capable

of creating infinite possibilities was provided by no present blockchain-based 3D open worlds. A 3D world entirely built on assets is not a real living Metaverse, however, the community should be enriched by a novel revolution.

To develop the blockchain infrastructure and arrange with a team for development of the tools I need your help. Polygon is selected by very creative and Innovative polygon team, hence, first blockchain based alive metaverse is made by mix of Virtualand and polygon.

By introduction of the concept of programmable objects, known as Virtualand tech Objects, we breathe life into Virtualand objects to implement on a canonical virtual machine known as the Virtualand manager machine (VMM). The track of a group of Virtualand Objects in one or more Lands is kept by the VMM and each object's attributes, appearance, and lifecycle are managed. Custom functionalities can be defined by the users for customizing these Virtualand Objects' behavior. Authorized creators can simply program their Virtualand Objects' actions and make complicated 3D applications utilizing the Virtualand Object and Scene Editor and integrating multiple programmed/scripted Virtualand Objects which can interact with each other then. Hierarchical objects are enabled by the ideal VMM for jointly operation based on the predefined scripted operations. The number of objects and the complexity of application logic are dedicated by the requested VMM CPU and memory capacity.
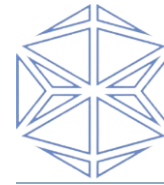
Moreover, a Virtualand Network can be formed by connecting multiple VMM. Simultaneously, each VMM operates a Scene on a Space (a collection of merged Lands) or single Land providing different properties on the same game server. Creators may make 3D applications on a single VMM and also cross-VMM for multiscene applications.

As formerly defined, Virtualand tech is a Turing complete metaverse where each object can be planned as a living entity. Moreover, we provide tools and services for the developers and creators to help them produce DApps and Scenes. Thousands of 3D applications will simultaneously operate in the form of completely programmable objects, which can be decentralized. In this way, apps are integrated by Virtualand tech into the actual metaverse.

By the programming language and development team tooling, the users can establish immersive 3D applications. Creators can define 3D objects' shapes, create lighting, attach materials and textures, add transformation functions, make payments, attach scripted behaviors, and invoke external services. The players can check details such as textures by going into the 3D NFT buildings. They can bring the NFT home, end purchasing in the immersive marketplace without external links, and utilize an auto construction code pack to observe the NFT building auto-build on their Lands.

Users are allowed to directly import 2D images, videos, 3D models, audios, as well as other multimedia NFTs into the 3D world with convenient functions.

The imported NFT will be converted into a Virtualand Object with an original appearance (for example, a 2D image is changed into a 3D picture with a frame). Creators can program the loaded NFTs to make them more functional since all the NFTs are imported into Virtual and become Virtualand object. For example, a game maker can make playable characters for a mini-game utilizing Loot NFTs and creating a mini-game through these characters. In contrast, when the creator is an artist knowing about programming, by applying a dynamic animating filter, he/she can change a static image into an animation.

Here, we intend to release a combination of tools enabling anyone to make 3D objects in the Virtualand. A 3D model's geometry, material, lighting, and shaders are altered by the first tool as a cloud-based What You See Is What You Get model editor.